PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 23 March 2001 (23.03.01)	
International application No. PCT/US00/17040	**Applicant's or agent's file reference** RCA 89646
International filing date (day/month/year) 21 June 2000 (21.06.00)	**Priority date** (day/month/year) 15 July 1999 (15.07.99)
Applicant WHITE, David, Glen et al	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

14 February 2001 (14.02.01)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO **34, chemin des Colombettes** **1211 Geneva 20, Switzerland**	Authorized officer S. Mafla
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
RCA 89646		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/US 00/ 17040	21/06/2000	15/07/1999
Applicant		
THOMSON LICENSING S.A.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

   [ ] contained in the international application in written form.

   [ ] filed together with the international application in computer readable form.

   [ ] furnished subsequently to this Authority in written form.

   [ ] furnished subsequently to this Authority in computer readble form.

   [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of Invention is lacking** (see Box II).

4. With regard to the **title,**

   [ ] the text is approved as submitted by the applicant.

   [X] the text has been established by this Authority to read as follows:

   DEMODULATION SECTION IN A MULTIPLE PROTOCOL RECEIVER

5. With regard to the **abstract,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 1

   [X] as suggested by the applicant.

   [ ] None of the figures.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the invention.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 00/17040

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04N5/00 G06F13/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04N G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, COMPENDEX, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 776 127 A (HITACHI LTD) 28 May 1997 (1997-05-28) abstract column 3, line 39 -column 4, line 8; figure 1 ---	1-8
Y	EP 0 867 812 A (TOKYO SHIBAURA ELECTRIC CO) 30 September 1998 (1998-09-30) abstract column 2, line 29 -column 3, line 52 column 10, line 57 -column 11, line 35; figures 3,4 claims 3,4,8 --- -/--	1-8

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 September 2000	28/09/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Beaudet, J

1

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 574 273 A (TOSHIBA AVE KK ;TOKYO SHIBAURA ELECTRIC CO (JP)) 15 December 1993 (1993-12-15) column 3, line 33 -column 3, line 53 column 7, line 51 -column 8, line 9 column 11, line 36 -column 11, line 48 claim 1; figure 3 ---	1-6
A	WO 86 07228 A (XITEL PTY) 4 December 1986 (1986-12-04) abstract; claim 9; figure 1 ---	1-6
A	WO 99 11026 A (NOKIA TELECOMMUNICATIONS OY ;YLAE MELLA JARMO (FI)) 4 March 1999 (1999-03-04) abstract page 9, line 28 -page 9, line 36; figure 5 claims 1,3,5 ---	1-6
A	EP 0 347 083 A (ADVANCED MICRO DEVICES INC) 20 December 1989 (1989-12-20) column 1, line 6 - line 19 ---	7
A	EP 0 822 714 A (THOMSON CONSUMER ELECTRONICS) 4 February 1998 (1998-02-04) abstract column 4, line 13 -column 4, line 34; figure 1 -----	8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 00/17040

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0776127 A	28-05-1997	JP 9205638 A	05-08-1997
EP 0867812 A	30-09-1998	JP 10116064 A	06-05-1998
		WO 9816887 A	23-04-1998
EP 0574273 A	15-12-1993	JP 5347736 A	27-12-1993
		CA 2098372 A	13-12-1993
		DE 69320868 D	15-10-1998
		DE 69320868 T	28-01-1999
		KR 9615838 B	21-11-1996
		US 5418815 A	23-05-1995
WO 8607228 A	04-12-1986	AU 586001 B	29-06-1989
		AU 5955686 A	24-12-1986
		EP 0221962 A	20-05-1987
WO 9911026 A	04-03-1999	FI 973505 A	27-02-1999
		AU 8980698 A	16-03-1999
		EP 1010297 A	21-06-2000
EP 0347083 A	20-12-1989	US 4918332 A	17-04-1990
		AT 116492 T	15-01-1995
		DE 68920208 D	09-02-1995
		DE 68920208 T	29-06-1995
		ES 2065382 T	16-02-1995
		GR 3015601 T	30-06-1995
		JP 2039621 A	08-02-1990
		JP 2724331 B	09-03-1998
EP 0822714 A	04-02-1998	US 5946052 A	31-08-1999
		BR 9704214 A	26-01-1999
		BR 9704216 A	26-01-1999
		BR 9704217 A	26-01-1999
		CN 1175166 A	04-03-1998
		CN 1175849 A	11-03-1998
		CN 1176560 A	18-03-1998
		EP 0822715 A	04-02-1998
		EP 0822716 A	04-02-1998
		JP 10117329 A	06-05-1998
		JP 10117330 A	06-05-1998
		JP 10117328 A	06-05-1998
		SG 53022 A	28-09-1998
		SG 53023 A	28-09-1998
		US 5946045 A	31-08-1999

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

TRIPOLI, Joseph S.et al.
THOMSON MULTIMEDIA LICENSING INC.
P.O. Box 5312
Princeton, New Jersey 08540
ETATS-UNIS D'AMERIQUE

RHK/JBH

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing *(day/month/year)*	07.08.2001
Applicant's or agent's file reference: RCA 89646	**IMPORTANT NOTIFICATION**

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US00/17040	21/06/2000	15/07/1999

Applicant
THOMSON LICENSING S.A. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/	Authorized officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Schalinatus, D Tel.+49 89 2399-8242

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
RCA 89646		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US00/17040	21/06/2000	15/07/1999
International Patent Classification (IPC) or national classification and IPC H04N5/00		
Applicant THOMSON LICENSING S.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☒ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
14/02/2001	07.08.2001
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Loeser, E Telephone No. +49 89 2399 8482

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US00/17040

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:
Description, pages:

1-9	as originally filed				

Claims, No.:

1-13	as received on	03/07/2001	with letter of	29/06/2001	

Drawings, sheets:

1	as originally filed				

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   - ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
   - ☐ the language of publication of the international application (under Rule 48.3(b)).
   - ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   - ☐ contained in the international application in written form.
   - ☐ filed together with the international application in computer readable form.
   - ☐ furnished subsequently to this Authority in written form.
   - ☐ furnished subsequently to this Authority in computer readable form.
   - ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
   - ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   - ☐ the description, pages:
   - ☐ the claims, Nos.:

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-13
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-13
Industrial applicability (IA)	Yes:	Claims	1-13
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

1. General

The present application does not satisfy the criteria set forth in Article 33(3). Details of the objections are set out below.

2. Concerning Section V - Articles 33(2) and 33(3) PCT

2.1 Prior art

The following documents are cited:
D1: EP-A-0 776 127;
D2: EP-A-0 867 812;
D3: WO-A-86/07228;
D4: WO-A-99/11026.

2.2 Claim 1

The subject-matter of claim 1 defines
(a) a number of modules each performing a same or similar function (demodulation in the present case) wherein
(b1) the modules operate according to respective different modulation schemes;
(b2) each module is provided with a tri-state output terminal for output data;
(c) a signal bus coupled between the output terminals, and
(d) a signal processor for processing output data (demodulated data) in the present case).

According to the description (p.3 lines 12-20) and to D1 (Fig. 1), it is known in the prior art to provide a number of demodulator modules 16-19 as identified in feature (a) above. It is further known to couple the output signal of a selected one (selected via a multiplexer) of such modules to a signal processor (D1: Fig.1: decoder 21). Thus the prior art (e.g. D1) also anticipates feature (d) identified above.

The demodulators 16-19 disclosed in D1 do not disclose the claimed features (b1), (b2) and (c).

However, D1 also discloses a bus system 8 to which are connected a CPU 1 as a signal processor, and a hard disk device 3, a CD ROM device 4 and a MO device 5. The data stored with the latter devices are known to be stored according to different modulation schemes. Thus there is an implicit disclosure that when data signals are read from these devices, they are to be demodulated from the stored format to a format for subsequent processing. This requires respective different demodulators within the different devices. Hence the disclosed bus system with storage and processor modules connected thereto anticipates all features of claim 1 identified above with the exception of feature (b2).

Features (b2) and (c) are long and well known in computer technology. Tri-State is (or at least was) a trademark pertaining to output ports of a device which could be set either into a disabled or high-impedance state to effectively disconnect them from a bus, or into a enabled/low-impedance state in which the outputs may impose logic low or logic high levels onto the bus. Such technology is disclosed in D2 (col.2 line 29 - col.3 line 52), D3 (claim 9) and D4 (abstract; Fig.2).

Thus in light of the disclosure of D1 and the normal design options of the skilled person exemplified by the well-known Tri-State technology such as exemplarily disclosed in D2, D3 or D4, the subject-matter of claim 1 lacks an inventive step (Art. 33(3) PCT contravened).

It is to be noted that claim 1 would also have to be considered to lack an inventive step when following the chain of reasons developed below with respect to claim 9.

2.3 Claim 9

Claim 9 provides the following features in addition to the features of claim 1 identified in paragraph 2.2 above:

(d) the demodulators are comprised in a consumer video receiver and demodulate respective video signals;

(e) the signal processor is a controllable transport processor for processing a selected one of the demodulated video signals, to generate the represented video signal;

(f) the video signals have respectively different data protocols and are modulated using respectively different modulation schemes.

The claimed apparatus can thus cope with the situation that differently modulated video signals with respective different data protocols are present. Such a situation is known from the prior art cited in the description (p.2 line 17 - p.3 line 20).

According to the described prior art (p.3 lines 12-20), it is known to provide additional video demodulators for respective additional modulation schemes, and an output signal from plural demodulator modules is selected by using a demultiplexer.

Hence adding a demodulator would require expanding the demultiplexer, unless free inputs are provided in excess. The described prior art is considered to anticipate all features of claim 9 with the exception of the claimed bus system with the Tri-State outputs of the demodulators.

Accordingly the subject-matter of claim 1 solves a problem of lacking expandability or flexibility of the prior art cited on p.3. This view is confirmed on p.4 (lines 3-13) of the description on file.

However, as indicated above in paragraph 2.2 above, the well-known bus technology using Tri-State outputs provides the basis

for easily expandable systems. The skilled person attempting to solve the problem identified above would consider applying such technology without exercise of an inventive step. Therefore, claim 9 fails to meet the requirements set out in Art 33(3) PCT.

2.4. Dependent claims

The additional features of claims 2-8 and 10-13 do not appear to comprise subject-matter upon which an inventive step could be based. This is because on the one hand the additional features of claims 2-7 are considered to represent mere normal/obvious design options that are readily available to the skilled person attempting to implement a design using tri-state technology.

3. Concerning Section VII: Description and other belongings

Contrary to Rule 5.1(a)(ii) PCT, the relevant background art disclosed in documents D1-D4 is not summarized in the description, nor are these documents identified therein.

What is claimed is:

1. In a multiple protocol receiver, a demodulator section, comprising:

a plurality of demodulators (10(1), 10(2) ... 10(N)); and

a signal processor (30) for processing demodulated data;

CHARACTERIZED BY:

the plurality of demodulators (10(1) ,10(2) ... 10(N)) demodulating data having a respectively different modulation schemes, and each having a tri-state output terminal for demodulated data; and

a signal bus (20), coupled between the respective output terminals of the plurality of demodulators (10(1), 10(2) ... 10(N)), and the signal processor (30).

2. The demodulator section of claim 1 CHARACTERIZED BY a system controller (40), coupled to the plurality of demodulators (10(1) ,10(2) ... 10(N)), for conditioning a selected one of the plurality of demodulators (10(1), 10(2) ... 10(N)) to pass demodulated data through the output terminal to the signal bus (20), and conditioning the other ones of the plurality of demodulators (10(1), 10(2) ... 10(N)) to exhibit a high impedance at their respective output terminals.

3. The demodulator section of claim 1 CHARACTERIZED IN THAT each of the plurality of demodulators (10(1), 10(2) ... 10(N)) comprises a tri-state buffer (12(1), 12(2) ... 12(N)) having an output terminal coupled to the signal bus (20).

4. The demodulator section of claim 3 CHARACTERIZED IN THAT:

the tri-state buffer (12(1), 12(2) ... 12(N)) in each of the plurality of demodulators (10(1), 10(2) ... 10(N)) further comprises a control input terminal (OE); and

the demodulator section further comprising a system controller (40), respectively coupled to the control input terminal (OE) of the tri-state buffer (12(1), 12(2) ... 12(N)) in each of the plurality of demodulators (10(1), 10(2) ... 10(N)), for conditioning the tri-state buffer (12(1), 12(2) ... 12(N)) in a selected one of the plurality of demodulators (10(1), 10(2) ... 10(N)) to pass demodulated data through the output terminal to the signal bus (20), and conditioning the tri-state buffer (12(1), 12(2) ... 12(N)) in the other

ones of the plurality of demodulators (10(1), 10(2) ... 10(N)) to exhibit a high impedance at their respective output terminals.

5. The demodulator section of claim 4, CHARACTERIZED IN THAT:

each of the plurality of demodulators (10(1), 10(2) ... 10(N)) comprises a plurality of tri-state buffers (12(1), 12(2) ... 12(N)), having their control input terminals coupled in common to the system controller (40); and

the signal bus (20) comprises a plurality of signal lines (DATA, CLOCK, PACKET VALID, PACKET DATA) respectively coupled to the respective output terminals of the plurality of tri-state buffers (12(1), 12(2) ... 12(N)).

6. The demodulator section of claim 4, CHARACTERIZED IN THAT each of the plurality of demodulators (10(1), 10(2) ... 10(N)) further comprises a control register (14(1), 14(2) ... 14(N)), having an input terminal coupled to the system controller (40) and an output terminal coupled to the control input terminal (OE) of the tri-state buffer (12(1), 12(2) ... 12(N)).

7. The demodulator section of claim 1 CHARACTERIZED BY a buffer (25) coupled between the signal bus (20) and the signal processor (30).

8. The demodulator section of claim 1 CHARACTERIZED IN THAT the signal processor (30) is a transport processor.

9. A consumer video receiver, capable of receiving and processing a plurality of video representative signals, comprising:

a plurality of demodulators (10(1), 10(2) ... 10(N)) for generating respective demodulated video representative signals; and

a controllable transport processor (30), for processing a selected one of the demodulated video representative signals, to generate the represented video signal; CHARACTERIZED BY:

the video representative signals having respectively different data protocols and being modulated using respectively different modulation schemes;

the plurality of demodulators generating the respective demodulated video representative signals having corresponding data protocols, each demodulator having a tri-state output terminal;

the controllable transport processor processing the demodulated video representative signal according to the corresponding data protocol; and

a data bus, coupled between the respective output terminals of the plurality of demodulators and the controllable transport processor.

10. The consumer video receiver of claim 9, CHARACTERIZED IN THAT the controllable transport processor is fabricated on a single integrated circuit (IC).

11. The consumer video receiver of claim 9, CHARACTERIZED IN THAT the receiver is contained within a single enclosure.

12. The consumer video receiver of claim 9, CHARACTERIZED IN THAT the respectively different data protocols are selected from the group consisting of direct satellite system (DSS) signals, terrestrial broadcast high definition television (HDTV) signals, and direct video broadcast (DVB) signals.

13. The consumer video receiver of claim 9, CHARACTERIZED IN THAT the respectively different modulation schemes are selected from the group consisting of quadrature phase shift keyed (QPSK), vestigial sideband (VSB), and quadrature amplitude modulated (QAM).

14

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
RCA 89646		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US00/17040	21/06/2000	15/07/1999
International Patent Classification (IPC) or national classification and IPC H04N5/00		
Applicant THOMSON LICENSING S.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☒ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
14/02/2001	07.08.2001
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Loeser, E Telephone No. +49 89 2399 8482

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US00/17040

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:
Description, pages:

1-9	as originally filed				

Claims, No.:

1-13	as received on	03/07/2001	with letter of	29/06/2001	

Drawings, sheets:

1	as originally filed				

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   - ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
   - ☐ the language of publication of the international application (under Rule 48.3(b)).
   - ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   - ☐ contained in the international application in written form.
   - ☐ filed together with the international application in computer readable form.
   - ☐ furnished subsequently to this Authority in written form.
   - ☐ furnished subsequently to this Authority in computer readable form.
   - ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
   - ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   - ☐ the description, pages:
   - ☐ the claims, Nos.:

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-13
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-13
Industrial applicability (IA)	Yes:	Claims	1-13
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

1. General

The present application does not satisfy the criteria set forth in Article 33(3). Details of the objections are set out below.

2. Concerning Section V - Articles 33(2) and 33(3) PCT

2.1 Prior art

The following documents are cited:
D1: EP-A-0 776 127;
D2: EP-A-0 867 812;
D3: WO-A-86/07228;
D4: WO-A-99/11026.

2.2 Claim 1

The subject-matter of claim 1 defines
(a) a number of modules each performing a same or similar function (demodulation in the present case) wherein
(b1) the modules operate according to respective different modulation schemes;
(b2) each module is provided with a tri-state output terminal for output data;
(c) a signal bus coupled between the output terminals, and
(d) a signal processor for processing output data (demodulated data) in the present case).

According to the description (p.3 lines 12-20) and to D1 (Fig. 1), it is known in the prior art to provide a number of demodulator modules 16-19 as identified in feature (a) above. It is further known to couple the output signal of a selected one (selected via a multiplexer) of such modules to a signal processor (D1: Fig.1: decoder 21). Thus the prior art (e.g. D1) also anticipates feature (d) identified above.

The demodulators 16-19 disclosed in D1 do not disclose the claimed features (b1), (b2) and (c).

However, D1 also discloses a bus system 8 to which are connected a CPU 1 as a signal processor, and a hard disk device 3, a CD ROM device 4 and a MO device 5. The data stored with the latter devices are known to be stored according to different modulation schemes. Thus there is an implicit disclosure that when data signals are read from these devices, they are to be demodulated from the stored format to a format for subsequent processing. This requires respective different demodulators within the different devices. Hence the disclosed bus system with storage and processor modules connected thereto anticipates all features of claim 1 identified above with the exception of feature (b2).

Features (b2) and (c) are long and well known in computer technology. Tri-State is (or at least was) a trademark pertaining to output ports of a device which could be set either into a disabled or high-impedance state to effectively disconnect them from a bus, or into a enabled/low-impedance state in which the outputs may impose logic low or logic high levels onto the bus. Such technology is disclosed in D2 (col.2 line 29 - col.3 line 52), D3 (claim 9) and D4 (abstract; Fig.2).

Thus in light of the disclosure of D1 and the normal design options of the skilled person exemplified by the well-known Tri-State technology such as exemplarily disclosed in D2, D3 or D4, the subject-matter of claim 1 lacks an inventive step (Art. 33(3) PCT contravened).

It is to be noted that claim 1 would also have to be considered to lack an inventive step when following the chain of reasons developed below with respect to claim 9.

2.3 Claim 9

Claim 9 provides the following features in addition to the features of claim 1 identified in paragraph 2.2 above:

(d) the demodulators are comprised in a consumer video receiver and demodulate respective video signals;

(e) the signal processor is a controllable transport processor for processing a selected one of the demodulated video signals, to generate the represented video signal;

(f) the video signals have respectively different data protocols and are modulated using respectively different modulation schemes.

The claimed apparatus can thus cope with the situation that differently modulated video signals with respective different data protocols are present. Such a situation is known from the prior art cited in the description (p.2 line 17 - p.3 line 20).

According to the described prior art (p.3 lines 12-20), it is known to provide additional video demodulators for respective additional modulation schemes, and an output signal from plural demodulator modules is selected by using a demultiplexer.

Hence adding a demodulator would require expanding the demultiplexer, unless free inputs are provided in excess. The described prior art is considered to anticipate all features of claim 9 with the exception of the claimed bus system with the Tri-State outputs of the demodulators.

Accordingly the subject-matter of claim 1 solves a problem of lacking expandability or flexibility of the prior art cited on p.3. This view is confirmed on p.4 (lines 3-13) of the description on file.

However, as indicated above in paragraph 2.2 above, the well-known bus technology using Tri-State outputs provides the basis

for easily expandable systems. The skilled person attempting to solve the problem identified above would consider applying such technology without exercise of an inventive step. Therefore, claim 9 fails to meet the requirements set out in Art 33(3) PCT.

2.4. Dependent claims

The additional features of claims 2-8 and 10-13 do not appear to comprise subject-matter upon which an inventive step could be based. This is because on the one hand the additional features of claims 2-7 are considered to represent mere normal/obvious design options that are readily available to the skilled person attempting to implement a design using tri-state technology.

3. Concerning Section VII: Description and other belongings

Contrary to Rule 5.1(a)(ii) PCT, the relevant background art disclosed in documents D1-D4 is not summarized in the description, nor are these documents identified therein.

CLAIMS

1. In a multiple protocol receiver, a demodulator section, comprising:

a plurality of demodulators each having a tri-state output terminal for demodulated data; and

a signal bus, coupled between the respective output terminals of the plurality of demodulators, and a signal processor for processing the demodulated data.

2. The demodulator section of claim 1 further comprising a system controller, coupled to the plurality of demodulators, for conditioning a selected one of the plurality of demodulators to pass demodulated data through the output terminal to the signal bus, and conditioning the other ones of the plurality of demodulators to exhibit a high impedance at their respective output terminals.

3. The demodulator section of claim 1 wherein each of the plurality of demodulators comprises a tri-state buffer having an output terminal coupled to the signal bus.

4. The demodulator section of claim 3 wherein:

the tri-state buffer in each of the plurality of demodulators further comprises a control input terminal; and

the demodulator section further comprising a system controller, respectively coupled to the control input terminal of the tri-state buffer in each of the plurality of demodulators, for conditioning the tri-state buffer in a selected one of the plurality of demodulators to pass demodulated data through the output terminal to the signal bus, and conditioning the tri-state buffer in the other ones of the plurality of demodulators to exhibit a high impedance at their respective output terminals.

5. The demodulator section of claim 4, wherein:

each of the plurality of demodulators comprises a plurality of tri-state buffers, having their control input terminals coupled in common to the system controller; and

the signal bus comprises a plurality of signal lines respectively coupled to the respective output terminals of the plurality of tri-state buffers.

6. The demodulator section of claim 4, wherein each of the plurality of demodulators further comprises a control register, having an input terminal coupled to the system controller and an output terminal coupled to the control input terminal of the tri-state buffer.

7. The demodulator section of claim 1 further comprising a buffer coupled between the signal bus and the signal processor.

8. The demodulator section of claim 1 wherein the signal processor is a transport processor.